THE UNIVERSITY of EDINBURGH

Job Description

Internship Title: NERC Research Experience Placement – What makes a parasite superspreader?

Department/ School	Institute of Ecology and Evolution, School of Biological Sciences
Reports To	Amy Pedersen Amy.pedersen@ed.ac.uk

Job Purpose

The student will join our summer fieldwork team, gaining experience both in the field (live-trapping and collecting data on small mammals) and lab (analysing samples). They will use this large-scale dataset to answer a scientific question around the theme of parasite superspreaders, with flexibility depending on their interests.

Main Responsibilities

- (35%): Field work, live-trapping mice and collecting morphometric and parasitological data
- (30%): Helping the team prepare for field work and processing field samples for parasitology and lab analysis
- (25%): Conducting their statistical analyses (with help of mentor)
- (10%): Writing up their report on their placement work
- 8 times during placement: Attend our 1-hour lab meetings, for an opportunity to learn about related research being conducted and meet PIs and other PhD students in related research groups.

Knowledge Skills and Experience (required for the role)

Attribute	Essential	Desirable
Education, Qualifications & Training	Currently studying a Biological Sciences BSc	Experience with animal handling (rodents particularly) Field work experience
Knowledge & Experience	Basic R Studio skills	Advanced R Studio skills

Person Specification

Planning and Organising

- Punctuality: field days start at 8am sharp, and are time sensitive to minimise the time animals are in humane traps.
- Time-management: adjusting time spent on different tasks as needed

- Gathering the kit required for field days following the kit-list, topping supplies up as needed, preparing enough traps to last the week
- Keeping an overview of tasks that need doing and which ones need prioritising
- Communicating: actively communicating in the field, reporting back on tasks completed from a to-do list, signalling if supplies run low and need re-ordering

Problem Solving

- Being part of decision-making around splitting tasks, organising a schedule, thinking about efficient ways of working
- Learning how data is collected in the larger project and gaining experience in study design and data management
- Reacting to situations that may arise during fieldwork such as time constraints or uncertainty over the data, to find ways to work around them

Decision Making

- Participating in discussions around the planning and execution of fieldwork, making decisions around team structure and task division
- Using the large-scale dataset to answer a specific question
- Choosing how to best analyse data (incl. any transformations, choice of models etc.)

Key Contacts:

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Dimensions

Closing date for applications: Wednesday 14th May 2025 (Midnight)
Start date: Anytime between 16th June 2025 – 7th July 2025
Hours per week and preferred pattern/ restrictions (if applicable): 35 hours per week (part time option available)

Additional Information

Project Outline

Parasitic helminths play vital roles in natural ecosystems where they can drive host dynamics and structure ecological communities. They are also a major health and economic concern worldwide. A ubiquitous feature of helminth infection is the over dispersed (aggregated) distribution, where the majority of infection (~80%) is found within a minority of hosts (20%). These highly infected individuals may act as 'superspreaders', driving transmission by releasing large numbers of infective stages into the environment. However, the significance of superspreaders in natural systems remains poorly understood. In this project, you will join our research team in a large-scale field experiment in local woodlands. We are testing how individual-level heterogeneities in parasite shedding and social-spatial contacts may drive population-level transmission in wild wood mice.

Further Reading

- Lass, S;, Hudson, P.J., Thakar, J.,Saric, J;. Harvill, E., Albert, R., Perkins, S.E;, 2013. Generating super-spreaders: co-infection increased bacterial load and egg production of a gastrointestinal helminth. Journal of The Royal Society Interface 10,20120588. https://royalsocietypublishing.org/doi/10.1098/rsif.2012.0588
- Paull, S.H., Song, S., McClure, K.M., Sackett, L.C;, Kilpatrick, A.M;, Johnson, P.T. 2012. From superspreaders to disease hotspots: linking transmission across hosts and space. Frontiers in Ecology and the Environment 10, 75-82

https://esajournals.onlinelibrary.wiley.com/doi/10.1890/110111
- VanderWaal, K.L., Ezenwa, V.O., 2016. Herergeneity in pathogen transmission: mechanisms and methodology. Functional Ecology 30, 1606-1622
- Woolhouse, M.E.J., Dye, C., Etard, J.-F., Smith, T., Charlwood, J.D., Garnett, G.P., Hagan, P.,Hii, J.L.K., Ndhlovu, P.D., Quinnell, R.J., Watts, C.H., Chandiwana, S. K., Anderson, R.M., 1997. Heterogeneities in the transmission of infectious agents: Implications for the design of control programs. Proceedings of the National Academy of Sciences 94, 338-342. https://www.pnas.org/doi/full/10.1073/pnas.94.1.338

Budget
Up to £500 towards research costs for an ELISA Kit

Location
Ashworth Laboratories, King's Buildings, Charlotte Auerbach Rd, Edinburgh EH9 3FL
The student will have access to our laboratory and all necessary lab equipment to answer their research question, as well as access to our field sites between Tuesday and Thursday every week during the placement that are woodlands sites within ~15 miles of Kings Buildings. We have a field car for transport from KB to the field sites.

Health & Safety Requirements for the role
None

Key Job hazard information specific to the role
This role may result in potential exposure to certain hazards as listed below. These will be risk assessed by the school or department, which may require you to participate in, for example, health surveillance or follow other health and safety requirements.

- Working with animals, including farm animals, insects and birds.
- Working with pathogens or pathogen infected materials.

Programme Information
The Research Experience Programme (REPs), funded by NERC, offers paid research opportunities for undergraduate students. The programme is designed to address both demographic and diversity challenges in the environmental sciences, as well as thematic skills gaps, such as quantitative skills. This is a valuable opportunity to gain hands on research experience, boost your employability, and explore potential pathways into further study or careers in environmental science.

For full details on how to apply and the selection process, please visit our REP webpage

Application Support
The University's Careers service provides a wide range of resources to support your application, including guidance on CVs, cover letters, and interview preparation.
Students undertaking a REP placement will also have the opportunity participate in the **Edinburgh Award** - a structured programme that helps you reflect on and gain recognition from the University for the skills and attributes developed during your internship.
For more information, you can book an appointment with a Careers Consultant via MyCareerHub.

Eligibility Criteria
To be eligible for a REP placement, applicants must meet **all** of the following criteria:

• Be currently studying towards their first undergraduate degree studies (including integrated Master's degrees) in a UK Higher Education institution, in any science discipline
Note: *Final year students are eligible if they still hold student status at the* ***start of the placement,*** *even if the student graduates during the course of the placement.*

• Be eligible for subsequent NERC PhD funding as defined here:
- A UK citizen who has been living in the UK for at least the past 3 years OR
- An EU citizen with pre-settled or settled status under the EU Settlement Scheme OR
- A non-EU citizen who has obtained the right to remain in the UK - known as 'indefinite leave to remain' (ILR) OR
- An International/EU student currently studying in the UK under a Tier 4 or Student Route Visa with validity until at least September 2025.

REPs **do not** meet the requirements for visa sponsorship. As such, students who are not currently residing in the UK or who do not hold a valid UK visa are not eligible to apply.

You cannot take part if you are a visiting student, or have previously taken part in REP programme.

Privacy Statement
In addition to the University's HR Privacy Information Notice, please read the Student and Graduate Privacy Statement: Internships and work experience programmes to understand how your personal information will be collected, used, and stored as part of the application process. .

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